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The potential of using visual imagery to revolutionize measurement of emotional health

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Review Article: The potential of using visual imagery to revolutionize measurement of emotional health

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Abstract

Appropriate measurement of emotional health by all those working with children and young people is an increasing focus for professional practice.

Most of the tools used for assessment or self-assessment of emotional health were designed in the mid-20th century using language and technology derived from pen and paper written

texts. But, are they fit for purpose in an age of pervasive computing with increasingly rich audio-visual media devices being in the hands of young people?

This thought piece explores how the increased use of visual imagery, especially forms that can be viewed or created on digital devices might provide a way forward for more effective measuring of emotional health; including smiley faces, other emojis and other potential forms of visual imagery. The authors bring together perspectives from healthcare, counselling, youth advocacy, academic research, primary care and school based mental health support to explore these issues.

What is known about this topic is that

- There are existing measurement methods which use non-verbal tools, such as smiley faces.
- There is existing research of how visual imagery is used as a method to measure feelings and perception.
- Children and young people are increasingly using forms of imagery to communicate to their peers and adults.

What this study adds

- Brings the existing research into a cohesive review to provide a stimulating perspective around measuring emotional health in children and young people.
- Demonstrates why and how visual imagery could be used as a measurement as well as the challenges in developing for wider use amongst children and young people.

Introduction

There is no objective measure of emotional health problems in children and/or young people; no radiography, no blood test, no biopsy. The traditional way that doctors and others have

sought to assess levels of problems is by observation or questioning. This generally involves questions being asked of the child or parent in relation to their internal feelings and thoughts. These are often captured in the form of words, asking children and young people or families to express difficulties or states of wellbeing, which include choosing appropriate phrases or rating them against an interval or analogue scale. For example, one common measure of depression used for children is the Moods and Feelings Questionnaire (MFQ) which asks the child to consider how they have been "feeling or acting...in the past two weeks",[1]. It then offers a range of statements and asks the child to choose between "not true" (if never applied), "sometimes" (if sometimes applied) and "true" (if applies a lot). Example statements include "I felt miserable or unhappy" or "I didn't enjoy anything at all". The most commonly used questionnaire for depression for older adolescents (Patient Health Questionnaire v9/PHQ 9) asks: "Over the last 2 weeks, how often have you been bothered by any of the following problems?" Statements the adolescent is asked to consider include "Little interest or pleasure in doing things" and "feeling down, depressed or hopeless etc" These are rated on a scale of "not at all, several days, more than half days, nearly every day",[2].

Children and young people's mental healthcare exists within a fast changing environment in which visual imagery is ever more prevalent. A recent children and parents media use and attitudes report,[3] showed that in the 12-15 age range 69% had a social media profile and 89% used YouTube where predominantly three quarters of those used it to watch funny videos or 'pranks' and the same proportion watched music videos. Whereas a smaller proportion of 18%, of younger children aged 8-11 had a social media account, 77% were reported to use YouTube with a similar proportion of those watching funny videos/pranks compared to the older age group and 58% watched music videos,[4]. It is perhaps no wonder that children and young people are referred to as the digital generation when we can see such a high percentage in use of social media which relies so heavily on visual imagery, [3, 4].

Coming from a perspective where individuals potentially see visual imagery as a measurement method for emotional health within the future (see Appendix 1), we explore throughout this thought piece the existing methods, the advantages of this approach and where the challenges are for developing this approach into a formal measurement method. We suggest that the potential for visual imagery, in the form of emojis and other readily accessible media such as animations or video, as a way to express and measure emotional health of children and young people is currently underexplored. Furthermore we argue that the forms of visual imagery already available do not adequately represent emotional health.

Current visual approaches

In the measurement of emotional wellbeing of children and young people there are currently few examples of the use of visual imagery. Where they do exist they are very circumscribed and tend to be limited to smiling or sad faces at the end of scales. One example available within the range of tools supported by both the British Council for Counselling and Psychotherapy,[5] and the Child Outcomes Research Consortium is the Child Outcome Rating Scale (CORS),[6]. The CORS, based on a text-based scale for older children, features happy and sad smileys at the extremes of a visual analogue scale for the age range of 6-12, which is a very limited use of visual imagery. Smileys are also used in the Child Session Rating Scale (CSRS) and patient experience questionnaires such as the Commission for Health Improvement Experience of Service questionnaire,[5] and are also commonly used for pain measurement.

Use and adaptation of visual scales

It has been suggested that traditional methods of gathering children and young people's thoughts and ideas including verbal questionnaires may reduce the autonomy a child has, causing a limit within their response to what they feel is important and relevant in a research

context,[7]. Furthermore, it is already known that when given the opportunity to do so, children and young people are willing and able to modify text scales to their preferences. This was seen in the evaluation of the *In Hand* well-being app where children and young people in an advisory group added dimensions to the Short Warwick- Edinburgh Wellbeing Scale which already asks about wellbeing on a number of items such as "I've been feeling relaxed" and "I've been feeling useful". The children and young people consulted added: 'More able to take control', 'Ready to talk to someone else' and 'Less stressed' as meaningful dimensions. The modified scale was then included in a survey of app users with the goal of enabling individuals to better express whether and how the app was helpful in improving mental health,[8]. Therefore we can see from recent perspectives of children and young people that traditional methods are already being adapted by them as they are not deemed necessarily best or most comprehensive ways of capturing emotional health in children and young people of today. This customisation of scales could potentially be extended by the addition of visual imagery.

Emerging approaches and tools that use visual imagery

Looking as to whether anything already exists as a widespread adopted and developed measurement approach that uses imagery, we can in general say (mostly) no because as previously highlighted, widespread adopted approaches tend to consist of words largely in questionnaires in both research and practise. Here we will provide an overview of some of the innovative measurement tools that have utilised visual imagery as a measurement tool to capture perspectives on emotional health.

Craven et al,[9], as part of a study exploring representations of wellbeing in adult mental health, reviewed the literature to highlight the range of pictorial scales, symbolic, metaphorical and other sensorial representations of wellbeing e.g. gestural, textural/tactile or thermal either in use or suggested by researchers or practitioners. The review also cited co-

production with young people such as the set of twelve emojis selected and deployed in the Power Up app study,[10]. Furthermore, the review identified a recent mental health app *MentalSnapp* using video and highlighted the increased availability of tools to create personalised animations in social media such as *BitMoji*. In the study of Craven et al [9], when prompted to do so in a workshop setting, people with lived experience of mental health difficulties created very personal visualisations that could not readily be expressed by graphs/scales (Figure 1). They articulated variation in their state of well-being with a variety of audio-visual elements such as colour saturation, speed of movement or loudness and with changing metaphorical representations such as growth of a flower in the sun and rain versus a drooping or dying one, or increasing distance from a problem through a door. One participant created a set of fifteen graphical emotion cards so they could pick an appropriate one depending on their mood with pictures, alongside text descriptions, to show head in hands, worry lines, sweating, dancing etc. Craven et al,[9] concluded from their study that visualisations already available in digital health apps were not rich enough to adequately represent emotional health; thus further arguing the case for innovations in the usage of visual imagery.

A richer usage of smiley faces compared to that of the CORS scale was implemented in a mobile phone mood diary,[11]. Mood diaries are a common tool used with children and young people as well as other demographics, comprising of singular entries for an entire day or multiple entries for throughout the day at various times to monitor and track a person's emotions and feelings,[11].The use of imagery in this way may also help a child communicate their emotional health to their parents without the pressure for them to have to verbalise overwhelming or uncomfortable feelings or help aid conversations that professionals working with children and young people need to have with parents.

Another example of emojis used as measurement comes from a proposal to use them for psychometric testing,[12]. Here each emoji symbol was weighted against five personality types. We can also note an example of the use of imagery other than emojis in a psycho-

emotional context, in the 'Blob Tree' tool a person is asked to identify with or discuss the feelings of one or more of a set of expressive manikins occupying a tree,[13].

Future ways forward for use of visual imagery?

Whilst there have been some innovations attempting to use visual imagery as a measurement tool in emotional health, there are questions around how we actually do the measuring. Here we share our thoughts around how we could create an effective measurement tool to capture dimensions of emotional health and the challenges that would need to be considered when using visual imagery as a measurement.

Imagery can potentially augment the clinical assessment and enhance the monitoring of mental health in children and young people as imagery can provide a range of useful features that verbal communication cannot, as suggested above. More so it may aid expression of emotion when children and young people have limited facial movement or vocabulary [14]. Imagery may be used jointly with other methods of measurement because imagery has the ability to engage with strong emotions and feelings,[15].

As demonstrated in the report by OFCOM cited earlier, younger people are significantly involved with digital technology and social media on a daily basis, so being able to measure forms of visual imagery which commonly appear on digital platforms, such as emojis, animations and videos, could provide an additional dimension for assessing children and young people's emotional health in clinical practice. Assessment using digital tools is already becoming invested in as a way forward in the future,[16]. This is not to rule out traditional verbally-based assessments, but the suggestion could be used alongside traditional methods to create more of an understanding about the individual as the case of triangulation of data amongst methods was argued by Ernala et al,[17]. In Figure 2 we suggest one way of how visual imagery can be used as a measurement alongside other used ways of measuring emotional health.

Further supporting the use of visual imagery as a method of measurement is that it has been shown through Marengo, Giannotta and Settanni,[12] that a quantifiable scale with assigned numerical values to emojis can be used to measure perceptions. Whereas in other studies individuals such as Johnson,[18], Radley,[19] and Reavey,[15] have widely developed the practise of using imagery to interpret experiences in psychological research. Therefore imagery can be used as a multi-measurable model encompassing both quantitative and qualitative evidence to aid the measurement of emotional health in children and young people.

In support of exploring the possibility of using imagery to measure emotional health in children and young people it has been suggested that imagery is a universal language that overcomes verbal language barriers. In conversations between individuals who use emojis as forms of expression it will typically be found there is also the use of emojis consisting of body gestures, animals, food, objects and other subjects which appear to form a shared interpretation of what is being expressed. Comparing emojis to words, they can be used in patterns to construct a variety of expressions and can even imply non-verbal tones,[20, 21]. Although it should be noted that there are particular challenges around how some forms of images are interpreted amongst cultures and other demographic groups, as not all symbols, colours or gestures come with the same meaning between age groups and cultures,[22, 23]. However the same could be said of words and issues of translation of these between cultures and relevant to the challenges of measurement more generally as discussed by Jessica Flake and Eiko Fried,[24].

There are clearly challenges to using imagery as a measurement. The main challenge featured consists of being clear around our interpretations of images and that if images are constructively combined (in cases of emojis) that we are clear on what different combinations represent and imply. A further challenge is that if this was to be developed as a tool for measurement then we would need to complete a broad investigative task across cultures and generations to gain a firm understanding of interpretations across forms of

imagery, whilst also ensuring the inclusion and involvement of children and young people in this investigative process.

Conclusion

When systematically developed, visual imagery as a form of measurement in emotional health has been shown so far in its development to be interpretable in providing accurate and reliable results, but there remains challenges which need to be addressed if the method of measurement is to be both reliable and valid. However, imagery does provide opportunities for different ways of clearly expressing emotional health, and imagery can provide another medium for expression, as well as increasing choice and an element of personalisation for children and young people, which perhaps in turn would enable more children and young people to feel able to access the support they need.

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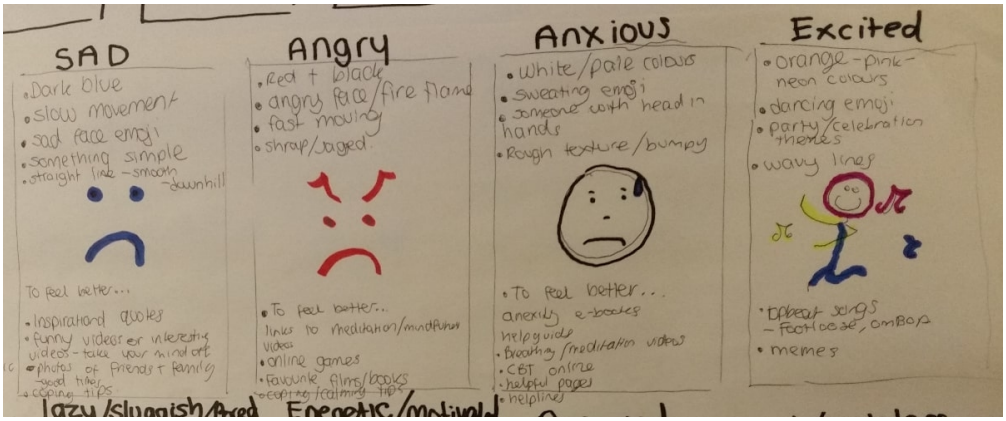

Figure 1: Examples of adult personal representations of well-being from Craven et al,[9] [Creative Commons attribution 4.0 International (CC BY 4.0)]

423x175mm (72 x 72 DPI)

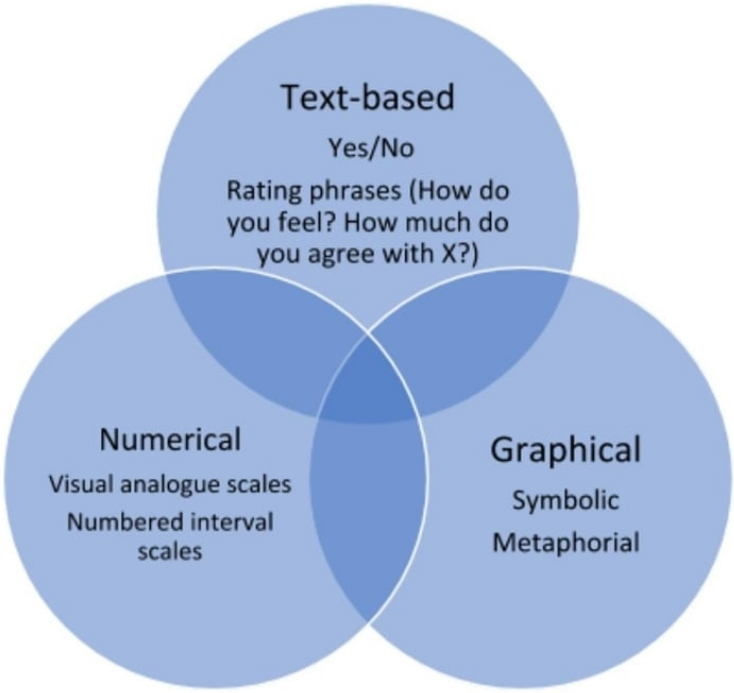

Figure 2: A formulation of how we as authors see the category of visual imagery as a measurement method of emotional health amongst the current measurement method categories

331x238mm (72 x 72 DPI)

Appendix 1

How this article came about

On 23rd April 2019 one of the authors (MW) re-tweeted a link to a suggested measurement tool that had emojis instead of verbal descriptions for levels of happiness/distress (the original tweet has since been deleted so we cannot reproduce it below). MW asked for comments from others on twitter as to whether this might be a good way forward for measurement in mental health contexts. Various people responded and the debate got quite heated- in particular between those with lived experience of mental health problems (many of those who thought it might be a good way forward) and some leading professionals in the field who felt it was not a good idea. On 27th April MW wrote “I know many of those involved in this thread and really respect them all for their passionate commitment to youth mental health. I also know how hard it is for those without the status of academic or equivalent jobs to get their voices heard. I have a proposal would people be interested in writing a joint piece on this issue (best ways to discuss monitor and measure MH). I am happy to convene and coordinate and we could look to post or publish somewhere suitable. Could air different views in a coordinated way. If so do dm or email”. The current authors (AH, MC, FM, MR, KR and LW) are those that emailed. AH, who comes from a position of lived experience of mental health difficulties and Aspergers, agreed to lead the piece and MW to support with the other authors agreeing to work as co-authors. The group were then approached by an editor of ADC (DH) who invited them to submit a piece once written for consideration by the journal. The rest is as you see below. AH agreed to lead the piece as through her experience of championing non-verbal communication she believes visual imagery is an under explored, but vital area to look into: “Sometimes it is really difficult to describe how you are feeling, not only to a clinician but also to family and friends. It is sometimes easier when you can pick out an image or an emoji to represent how you are feeling. There is less pressure to think of a way to verbalise your emotions or to explain it in a style that someone else will understand. From my particular experience, there is sometimes a struggle getting my point across when explaining my emotions through speech; but there is no problem

communicating my emotions to people around me with an emoji which is symbolic of an emotion - the problem is this is not a formal way for clinicians to capture how people are emotionally feeling. It is not a lazy substitution for verbal language, it is about putting people first, allowing and enabling people to express how they are feeling in a way that is effective for them" (AH).